EUROKLIMAT®

MINI EKAC Cat V1

Residential Central Air Conditioner

Small Air-cooled Cold/Hot Water Unit

Model: **Split Series** **EKAC040ARW/N~EKAC055ARW/N**

Integrated Series **EKAC060B(R)~EKAC150B(R)**

Cooling capacity: **9.7~40.8kW**

Heating capacity: **11~42.5kW**

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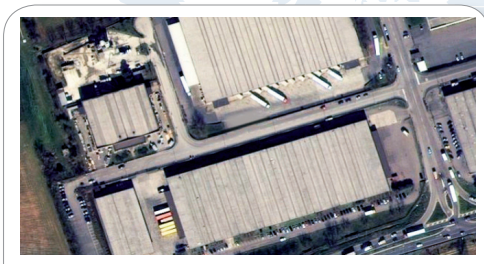
ISO9001 2008 corporate certification

Product QS certification (XK-06-015-00361)

EUROKLIMAT Air Conditioner, Environmental & Energy-saving Technology from Europe.



EK Italy Headquarters

EUROKLIMAT (EK), established in 1963 in Italy, which has been growing for the past half a century, and has become one of the most famous, energy-saving air conditioning manufacturers in Italy, Spain and the whole of Europe. Continuous innovation on new product development and top manufacturing quality are the driving force behind this growth.

EUROKLIMAT (EK) pursues the ideals of environmental friendly-providing physical comfort and energy-saving into the whole process of product R&D, manufacturing and service. All our 50 product series which covers residential, commercial and close control air-conditioners are manufactured according to European production standards. EK product incorporates the most advanced energy saving air-conditioning technology in Europe.

Guangdong EUROKLIMAT Air-Conditioning & Refrigeration Co., Ltd. (EK China), is the R&D, manufacturing, sales, marketing and service center for EK Group in Asia. EK Industrial Park with over 70,000 square meters of factory land is strategically located in Dongguan City, Guangdong, China. There are over 20 sales branches providing full scale service and support for the whole of China market. EK China exports its products to European, Australian, South American, South-East Asian and Middle Eastern markets.

Overview and Nomenclature

Overview

EKAC small residential air-cooled cold/hot water units are a new generation of residential air conditioners manufactured for the Chinese market based on leading-edge European design concepts to fit well with various graceful upholsteries. Units of this series require no cooling tower or special equipment room. All accessories of the water system are self contained and can be connected to various indoor terminals through the master unit. Equipped with a smart controller, units of this series can bring you all the comfort that a residential central air conditioner could possibly provide.

EKAC small residential air-cooled cold/hot water units feature various merits such as smart control, high efficiency, low operation sound, flexible structure, convenient operation, safe running and easy installation and maintenance. Units of this series can be widely used in houses, villas, stores, top-grade apartments, office buildings and other commercial areas which require separate air conditioning.

Nomenclature

Split Series

EKAC	040	A	R	W - A	AA
1	2	3	4	5 6	7

1.	EKAC	EK small air-cooled cold/hot water unit
2.	040	Cooling capacity code
3.	A	Design S/N
4.	R	Functional type: R: cooling & heating; omitted in cooling-only units
5.	W	Feature of master unit: W - outdoor unit; N - indoor unit
6.	A	Power supply features: A represents 220V~/50Hz
7.	AA	Detailed description on product specification

Integrated Series

EKAC	080	B	R	0 - F	AA
1	2	3	4	5 6	7

1.	EKAC	EK small air-cooled cold/hot water unit
2.	080	Cooling capacity code
3.	B	Design S/N
4.	R	Functional type: R: cooling & heating; omitted in cooling-only units
5.	0	Refrigerant code: 0: R407C; R22: omitted
6.	F	Power supply features: F represents 380V/3N~/50Hz
7.	AA	Detailed description on product specification

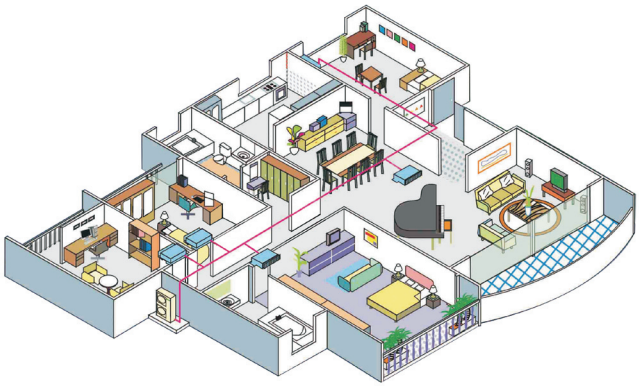
Water System Accessory Kit

EKAC -	WS	10	A
1	2	3	4

1.	EKAC	EK small air-cooled cold/hot water unit
2.	WS	Water system accessory kit
3.	10	Size of pipe connectors: 08: Rc1; 10: Rc1-1/4
4.	A	Design S/N

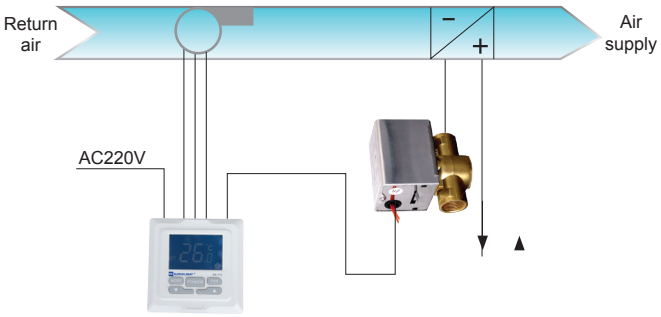
Comfortable and Stable Water System

Units of this series feature a classic European air conditioner design (chilled water/heat pump + indoor terminals) for precise temperature control. The units can provide you with a comfortable, healthy and graceful working/living environment.
The units feature a heat sink mechanism using circulatory air and needs no cooling tower. This not only saves the cost of the cooling tower, but also saves precious building space.
Units of this series feature various models and dimensions to meet different installation requirements.

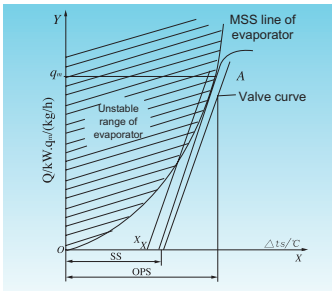


Efficient and Energy Saving

Units of this series are equipped with fully hermetic compressors which are stable, advanced and reliable. All components have undergone strict integration and compatibility test to ensure optimized performance and efficient/energy-saving operation all year round.
The EKAC080 ~ EKAC150 series integrated units perfectly unify the parallel compressor technology and electronic throttle technology to quickly modulate the cooling capacity to the set value, thereby making sure that the units are most energy efficient. The EER is even higher with partial workload. For example, for EKAC150BR series units, the EER is 6% higher with 75% of workload, 11% higher with 50% of workload, and 16% higher with 25% of workload.
The solenoid interlock control function can shut down the master unit and water pump automatically when all fans have stopped working, making the unit more energy saving.



Precise Electronic Throttle Technology for Accurate Control



The EKAC080 ~ EKAC150 series integrated units features a 500-step PMV electronic expansion valve for precise PID flow control, dynamic and real-time adjustment of the cooling capacity and accurate water temperature control. An electronic expansion valve with a large flow modulation range helps optimize the performance of various parts of the system, and makes the system work reliably under any workload. The units can automatically adapt to changing ambient temperatures, completely eliminating cooling system vibration during the capacity modulation process.

Throttle device of other brands	EK throttle (electronic expansion valve)
Heat balance flow control	Electronic servo flow control
Moderate modulation range	Large modulation range
Fixed superheat control	Dynamic superheat control
Weak adaptability	Strong adaptability
Unstable when water flow is low	Suitable for controlling any water flow

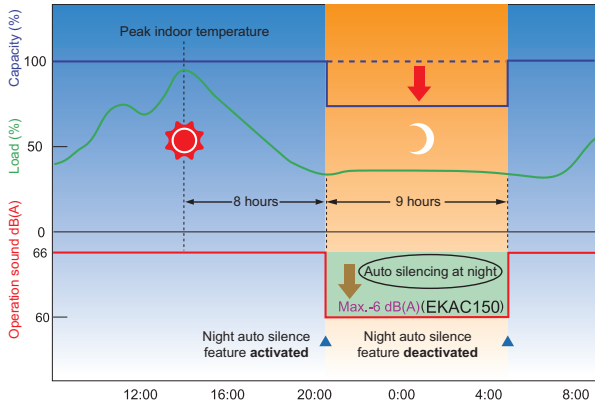
Larger Operational Range, Safe and Reliable

Long and strict tests prove that units of this series can work reliably in an environment as hot as 48°C (cooling) or as cold as -10°C (heating). With a smart split design, all water pipes can be installed indoor to prevent freezing during cold winters. The units can work with boilers to meet heating requirements in areas which are extremely cold in winter.
The units feature built-in high/low pressure protection, cooling freezing protection, winter freezing protection, compressor overload protection, water pressure-drop switch etc. to maximize reliability. In case of any failure, the micro-computer controller provides alarms using sound and indicators on a real-time basis. Besides unconditional manual defrosting, the controller also supports efficient auto defrosting based on multiple parameters during heating operations.

Features

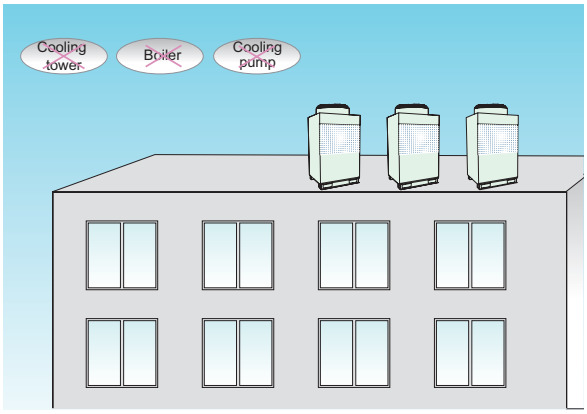
Silent and Comfortable

The units feature a strengthened vibration isolation case and multi-grade sound dampening. Thanks to a fully hermetic scroll compressor and a low-rev high-efficiency heat-sink fan, the operation sound and vibration of the units are brought down to an industry-leading level. With an innovative auto silence feature for night time, the EKAC080 ~ EKAC150 series units are more quiet at night.



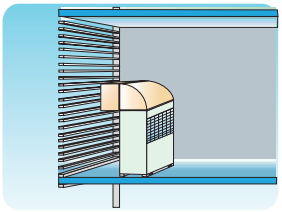
Mini Design, Fashionable and Graceful

The split series outdoor units feature a super-thin mini-design which occupies less area on the balcony and does not affect day lighting. The integrated series units feature top air supply, compact design, low height, small footprint and a fashionable and elegant exterior.

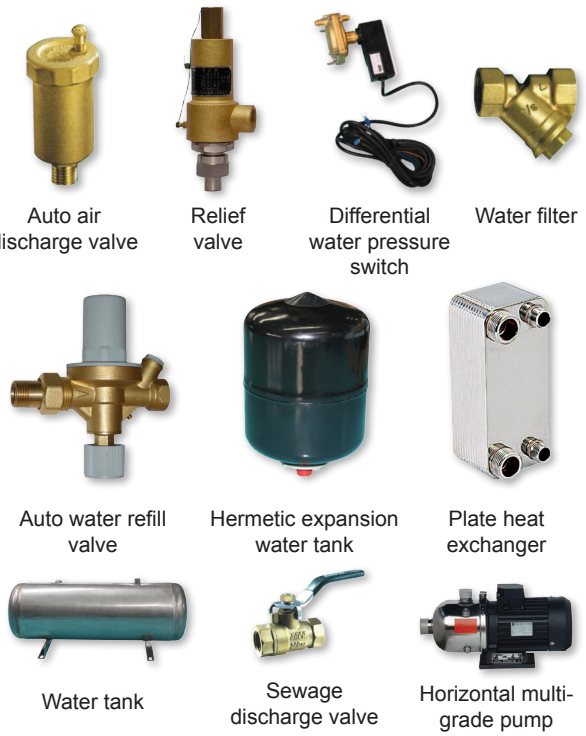


Flexible to Install and Space Saving

The units are small and easy to move, and can be flexibly installed on rooftops, balconies and other suitable outdoor places to save precious building space. There is no need to design or installed a cooling tower, boiler, cooling pump or relevant pipes. All ten major accessories of the water system are self contained, including horizontal multi-grade pump, plate heat exchanger, water tank, hermetic expansion water tank, differential water pressure switch, water filter, relief valve, auto air discharge valve, auto water refill valve and sewage discharge valve. The whole central air conditioner is very easy to install as you just need to connect some water pipes. In addition, an optional 30Pa static pressure air discharge through air ducts makes the EKAC080 ~ EKAC150 series integrated units more flexible to install.



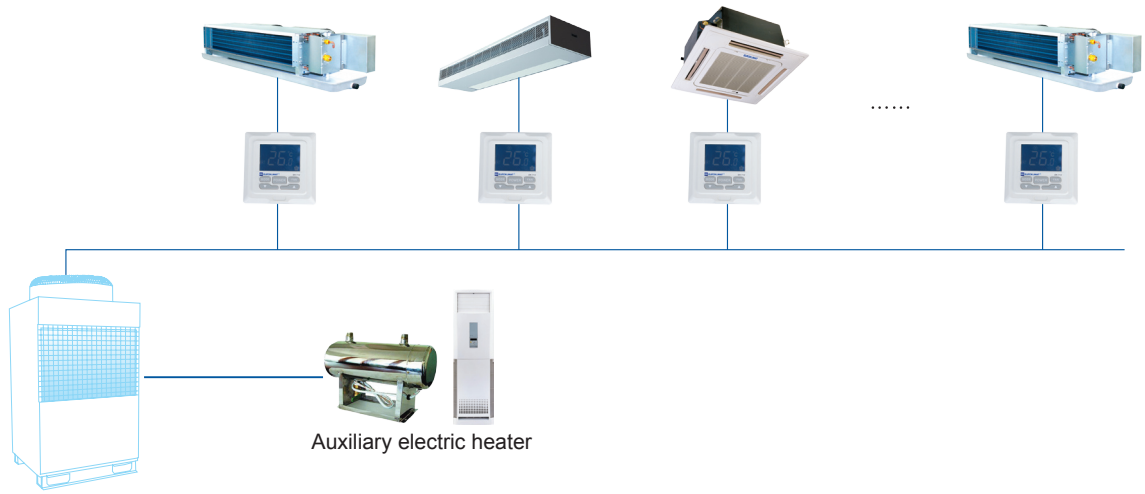
Water System Accessories (a Complete Kit Containing 10 Accessories)



Part name	Function description
Hermetic expansion water tank	1. Ensure a constant system pressure. 2. Prevent impurities and large amount of air from entering the water system and subdue the growth of bacteria and accumulation of scale.
Water tank	1. Automatically store the hot (chilled) water generated by the unit to save energy; 2. Avoid frequent startup of compressors to effectively improve the durability of the unit. 3. Ensure a minimum operation time of compressors to avoid alarms triggered due to low outlet water temperature.
Differential water pressure switch	Precisely control and monitor water flow according to the pressure drop between inlet water and outlet water to protect the unit.
Relief valve	Keep the pressure of the water system under the safety threshold to ensure the safety and reliability of the unit.
Auto air discharge valve	Automatically discharge air in the water system to ensure the operation stability of the unit.
Auto water refill valve	1. A self-contained pressure stabilizer automatically reduces and stabilizes pressure in the system to prevent the unit from being damaged by high water pressure. 2. The filter inside the valve can prevent impurities from entering the unit. A non-return valve helps stabilize the water pressure during water refill and prevent water from flowing back after refill. 3. With a manual stop valve, the water supply can be easily cut off, facilitating the discharge and maintenance of the unit.

Smart Auto Control

The units are equipped with a smart micro-computer control system to provide various control functions, such as function settings, parameter viewing, group control, etc. The controller has three levels of password protection to provide convenient and reliable operation management. Workload is automatically averaged among compressors to improve the durability of the entire system. Auto startup/shutdown can be configured for the central air conditioner on a weekly basis. All-round safety features make sure that the units are safe and reliable. With a terminal (indoor unit) interlock control function, the master unit can start up automatically as long as one terminal (indoor unit) is running. An auxiliary heating function facilitates system expansion, as shown in the following figure:



Auxiliary electric heater

Specifications

Specifications of Split Series Units

Model			EKAC040ARW/N	EKAC050ARW/N	EKAC055ARW/N
Nominal cooling capacity		kW	9.7	11.5	12.6
		×10³kcal/h	8.34	9.89	10.83
Nominal heating capacity		kW	11	13	14.5
		×10³kcal/h	9.46	11.18	12.47
Total power of nominal cooling capacity		kW	3.8	4.6	5.1
Total power of nominal heating capacity		kW	4.1	4.8	5.7
Power supply			220V~/50Hz		
Refrigerant	Type		R22		
	Flow control		Capillary		
Water side heat exchanger	Evaporator type		Vacuum braze-welded stainless steel plate heat exchanger		
	Water flow for cooling	m^3/h	1.7	2.0	2.2
	Water flow for heating	m^3/h	1.9	2.2	2.5
Compressor	Type		Fully hermetic rotary compressor		
Fan	Type		High-efficiency axial fan		
	Qty.	Set	2		
Water pump	Type		Horizontal centrifugal water pump		
	External lift	m	12	16	12
Volume of water tank		L	22		
Volume of expansion water tank		L	2		
Size of inlet/outlet water pipe connector			Rc1		
Dimensions (L/W/H)	Outdoor unit	mm	1005x430x1285	1005x430x1285	1105x430x1385
	Indoor unit	mm	835x810x350	835x810x350	835x860x350
Sound	Outdoor unit	dB(A)	56	57	60
	Indoor unit	dB(A)	42		
Refrigerant Size of pipe connectors	Liquid pipe	mm		Φ 9.52	
	Gas pipe	mm		Φ 15.88	
Power cable specification	Section area of live line	mm^2	4	6	6
	Qty. of live lines	PCS	1		
	Section area of null line	mm^2	4	6	6
	Qty. of null lines	PCS	1		
	Section area of grounding line	mm^2	1		
	Qty. of grounding lines	PCS	1		
Net weight	Outdoor unit	kg	142	151	178
	Indoor unit	kg	56	61	65

Note:

- Working conditions for nominal cooling capacity test: water flow rate 0.172m^3/(h.kw); temperature of outlet water 7°C; outdoor ambient temperature 35°C.
- Working conditions for nominal heating capacity test: water flow rate 0.172m^3/(h.kw); temperature of outlet water 45°C; temperature of outdoor dry/wet bulb 7°C/6°C.
- The sound level is tested before the unit leaves factory. Practically, due to environment noise and other factors, the sound level tested might be different from those listed in the above table.
- Please refer to the User Manual for specific operation ranges.

Specifications of Integrated Series Units

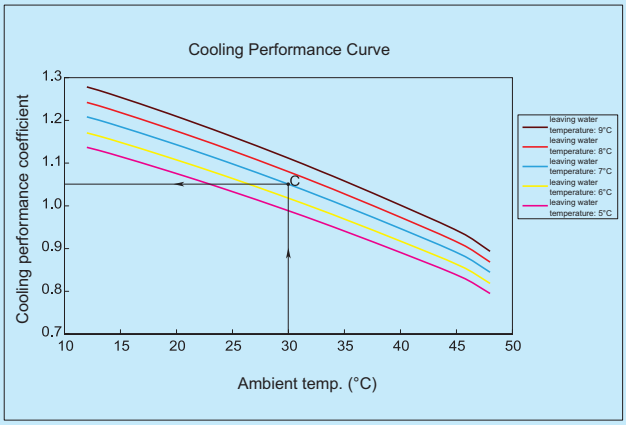
Model			EKAC 060B	EKAC 060BR	EKAC 070B	EKAC 070BR	EKAC 080B	EKAC 080BR	EKAC 100B	EKAC 100BR	EKAC 120B	EKAC 120BR	EKAC 150B	EKAC 150BR
Nominal cooling capacity		kW	15.5		18		25.5		29.5		36.1		40.8	
		×10³kcal/h	13.33		15.48		21.93		25.37		31.04		35.08	
Nominal heating capacity		kW	--	17.0	--	19.8	--	26.5	--	30	--	37.5	--	42.5
		×10³kcal/h	--	14.62	--	17.02	--	22.79	--	25.80	--	32.24	--	36.54
Total power of nominal cooling capacity		kW	5.2		6.1		8.6		9.9		12.3		14.1	
Total power of nominal heating capacity		kW	--	5.3	--	6.3	--	8.7	--	9.8	--	12.5	--	13.9
Power supply			380V/3N~/50Hz											
Refrigerant	Type		R22											
	Flow control		Capillary				Electronic expansion valve							
Water side heat exchanger	Evaporator type		Vacuum braze-welded stainless steel plate heat exchanger											
	Water flow for cooling	m³/h	2.7		3.1		4.4		5.1		6.2		7.0	
	Water flow for heating	m³/h	--	2.9	--	3.4	--	4.6	--	5.2	--	6.4	--	7.3
Compressor	Type		Fully hermetic volute compressor											
	Lubricant		Mineral oil (SUNISO 3GS)											
Fan	Type		Horizontal centrifugal water pump											
	Qty.		2				1							
Water pump	Type		Horizontal centrifugal water pump											
	External lift	m	12		11		15		13		14		11	
Size of inlet/outlet water pipe connector			Rc1				Rc1-1/4				Rc1-1/4			
Dimensions (L/W/H)		mm	1010x490x1245				992x845x1840				1292x845x1840			
Sound		dB(A)	64				62		64		66		67	
Power cable specification	Section area of live line	mm²	4				6							
	Qty. of live lines	PCS	3											
	Section area of null line	mm²	4											
	Qty. of null lines	PCS	1											
	Section area of grounding line	mm²	4				6							
	Qty. of grounding lines	PCS	1											
Unit weight	Net weight	kg	210	220	225	235	280	295	290	305	330	345	340	355
	Operating weight	kg	229	239	246	256	310	325	325	340	373	388	388	403
Water system Accessory kit	Model		EKAC-WS08A				EKAC-WS10A							
	Water tank	L	38				38							
	Expansion water tank	L	8				8							
	Size of pipe connectors		Rc1				Rc1-1/4							

Note:

- Working conditions for nominal cooling capacity test: water flow rate 0.172m³/(h.kw); temperature of outlet water 7°C; outdoor ambient temperature 35°C.
- Working conditions for nominal heating capacity test: water flow rate 0.172m³/(h.kw); temperature of outlet water 45°C; temperature of outdoor dry/wet bulb 7°C/6°C.
- The sound level is tested before the unit leaves factory. Practically, due to environment noise and other factors, the sound level tested might be different from those listed in the above table.
- Please refer to the User Manual for specific operation ranges.

Specifications

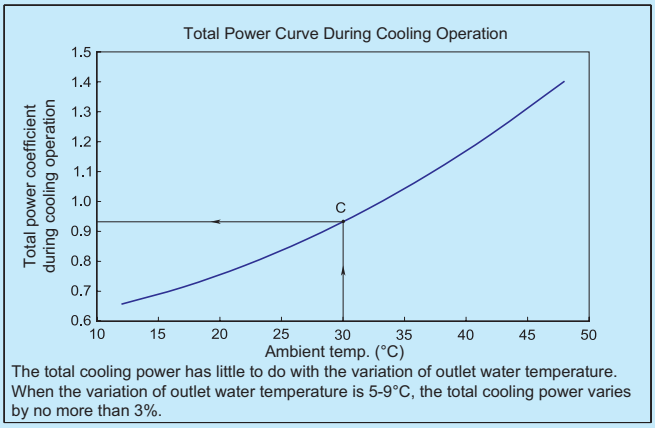
Cooling Performance Curve



Application

For example, when the dry bulb reads 30°C and the temperature of outlet water reads 7°C, the cooling capacity is calculated in the following way: Draw a vertical line which starts at 30°C on the horizontal axis and intersects the 7°C line for outlet water at C by following the direction indicated by arrows in the above figure. The ordinate of C represents the cooling capacity coefficient which is 1.05 in this example. Therefore, Actual cooling capacity = 1.05 x Nominal cooling capacity.

Total Power Curve During Cooling Operation



The total cooling power has little to do with the variation of outlet water temperature. When the variation of outlet water temperature is 5-9°C, the total cooling power varies by no more than 3%.

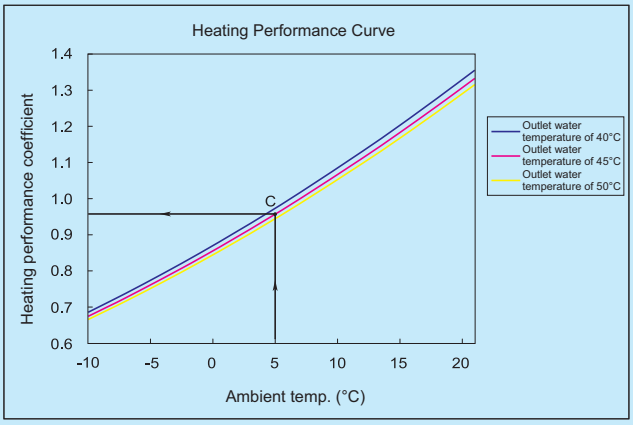
Application

For example, when the dry bulb reads 30°C and the temperature of outlet water reads 7°C, the total cooling power is calculated in the following way: Draw a vertical line which starts at 30°C on the horizontal axis and intersects the 7°C line for outlet water at C by following the direction indicated by arrows in the above figure. The ordinate of C represents the cooling capacity coefficient which is 0.935 in this example. Therefore, Actual cooling capacity = 0.935 x Nominal total cooling power.

Note:

- The above curve indicates how the cooling capacity coefficient and cooling power coefficient change as environment temperature changes when temperature of outlet water ranges from 5°C ~ 9°C.
- The above curve indicates how the unit's performance changes as environment temperature and outlet water temperature change. There might be a little difference between the actual performance of products and what is presented in the above figure.

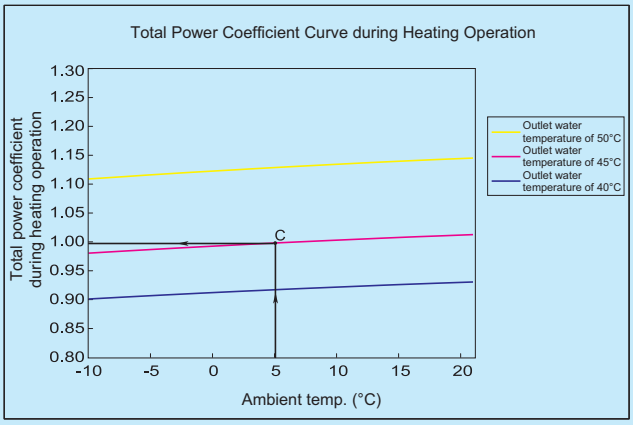
Heating Performance Curve



Application

For example, when the dry bulb reads 5°C and the temperature of outlet water reads 45°C, the heating capacity is calculated in the following way: Draw a vertical line which starts at 5°C on the horizontal axis and intersects the 45°C line for outlet water at C by following the direction indicated by arrows in the above figure. The ordinate of C represents the heating capacity coefficient which is 0.96 in this example. Therefore, Actual heating capacity = 0.96 x Nominal heating capacity.

Total Power Curve During Heating Operation



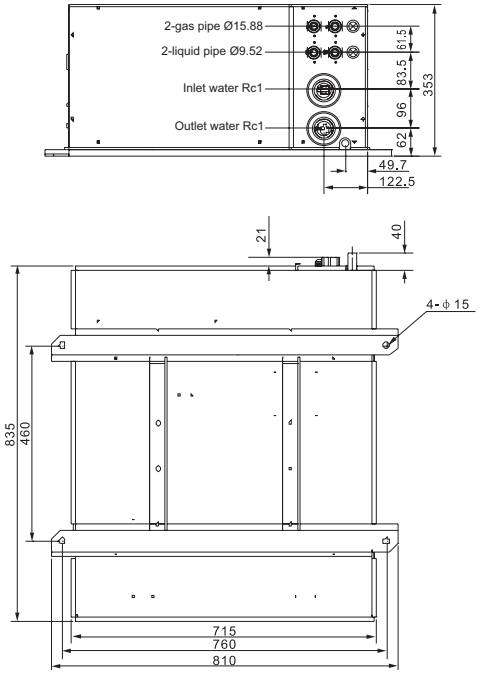
Application

For example, when the dry bulb reads 5°C and the temperature of outlet water reads 45°C, the total heating power is calculated in the following way: Draw a vertical line which starts at 5°C on the horizontal axis and intersects the 45°C line for outlet water at C by following the direction indicated by arrows in the above figure. The ordinate of C represents the heating capacity coefficient which is 0.99 in this example. Therefore, Actual heating capacity = 0.99 x Nominal total heating power.

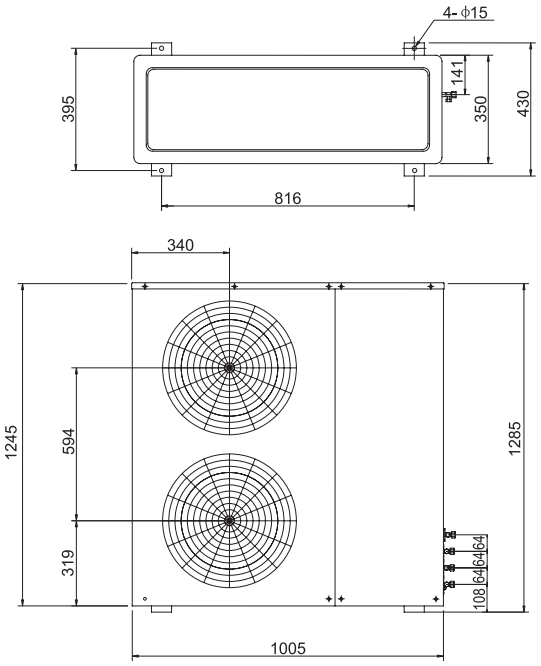
Note:

- The above curve indicates how the heating capacity coefficient and total heating power coefficient change as environment temperature changes when temperature of outlet water ranges from 40°C ~ 50°C.
- The above curve indicates how the unit's performance changes as environment temperature and outlet water temperature change. There might be a little difference between the actual performance of products and what is presented in the above figure.

Split series indoor units: EKAC040ARN/EKAC050ARN

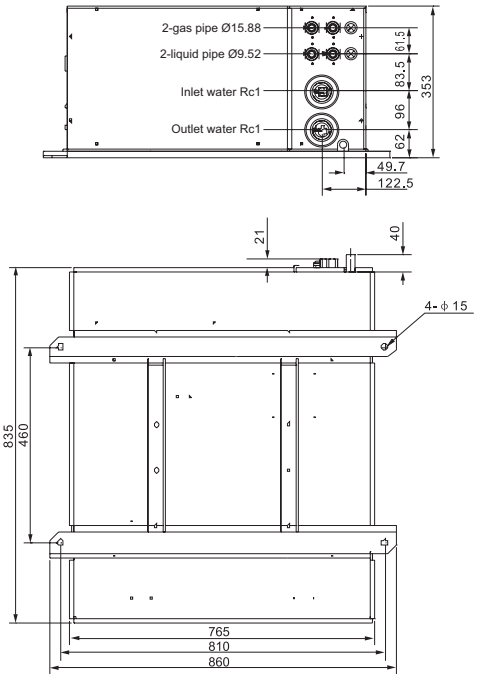


Split series outdoor units: EKAC040ARW/EKAC050ARW

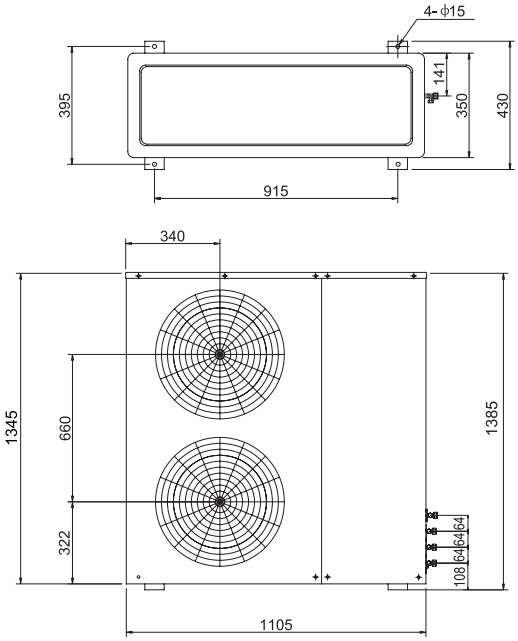


Measurement: mm

Split series indoor units: EKAC055ARN/EKAC055ARN



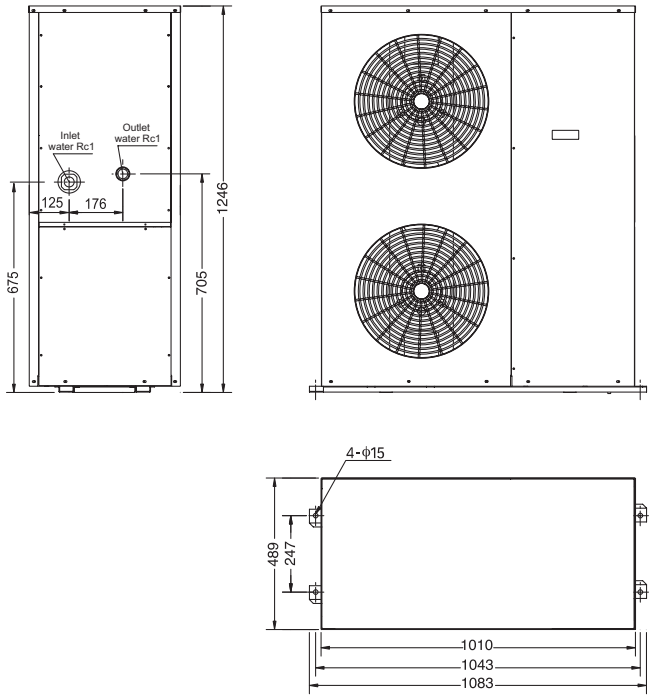
Split series outdoor units: EKAC055ARW/EKAC055ARW



Measurement: mm

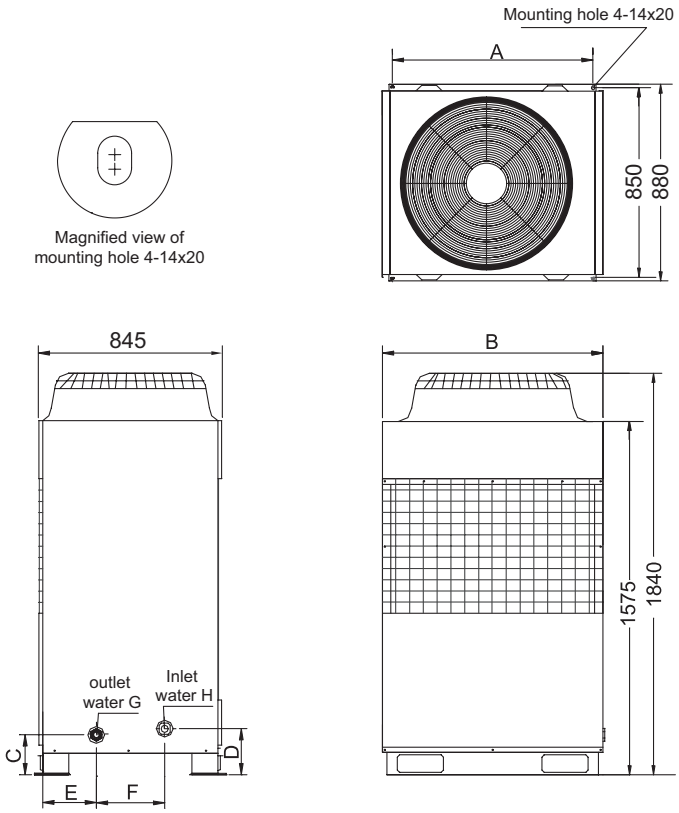
Illustration for Unit Dimensions

Integrated Series: EKAC060 and EKAC070



Measurement: mm

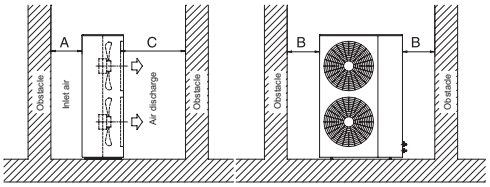
Integrated Series: EKAC080~EKAC150



Measurement: mm

Model	A	B	C	D	E	F	G	H
EKAC080	900	992	165	215	290	250	Rc1-1/4	Rc1-1/4
EKAC100	900	992	180	215	274	265	Rc1-1/4	Rc1-1/4
EKAC120/ EKAC150	1200	1292	179	215	286	261	Rc1-1/4	Rc1-1/4

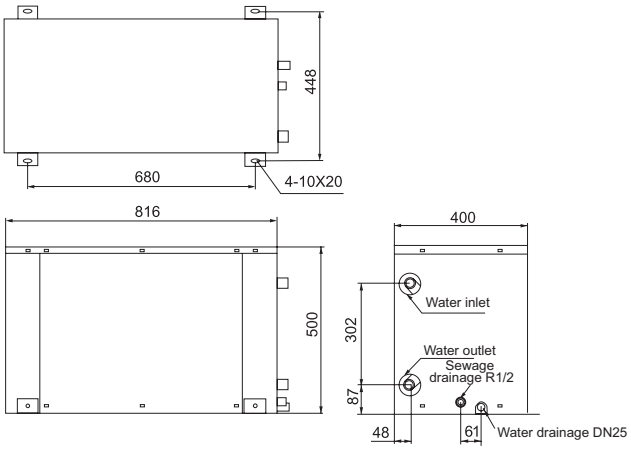
Space Requirement for Installation and Maintenance (Split Series: EKAC040ARW~EKAC055ARW)



Measurement: mm

Model		EKAC040ARW ~ EKAC050ARW	EKAC055ARW
Recommended distance (mm)	A	300	300
	B	500	500
	C	1500	2000

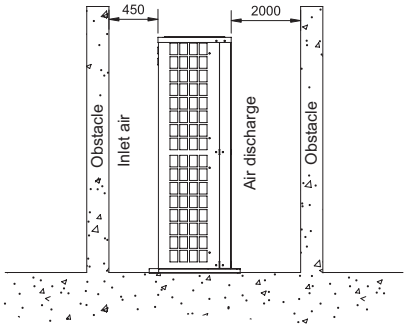
Illustration for Dimensions of Water System Accessories

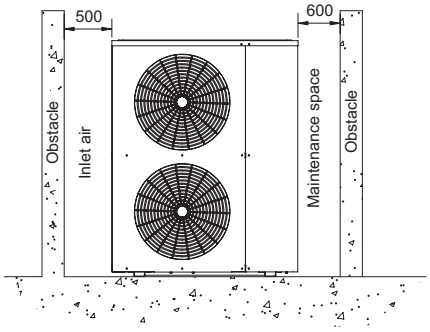


Measurement: mm

Model	Size of inlet/outlet water pipe connector
EKAC-WS08A	Rc1
EKAC-WS10A	Rc1-1/4

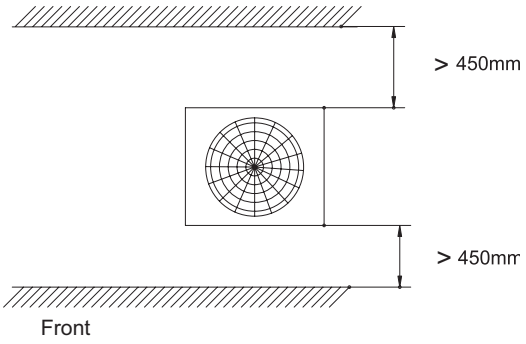
Space Requirement for Installation and Maintenance (Integrated Series: EKAC060~EKAC070)

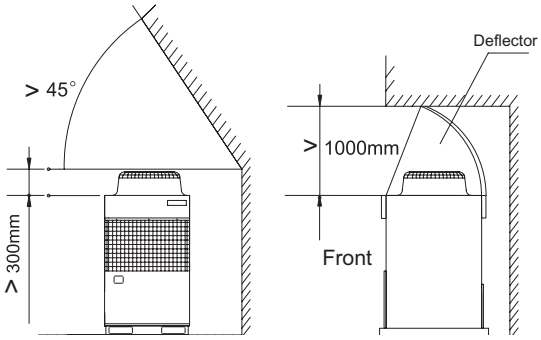




Measurement: mm

Space Requirement for Installation and Maintenance (Integrated Series: EKAC080~EKAC150)

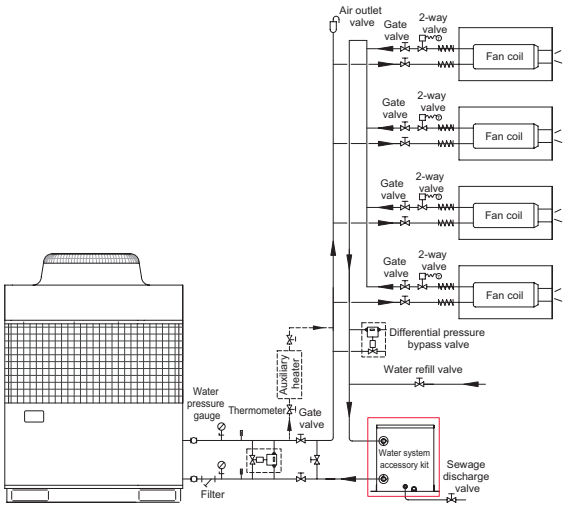




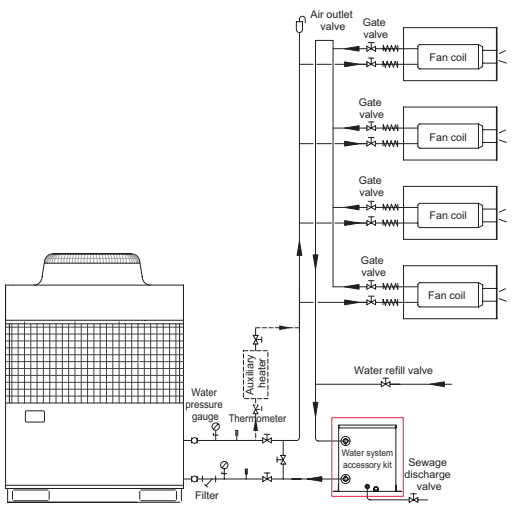
Measurement: mm

Water System of the Unit

Illustration of Water System



Water System Illustration for Units with Variable Water Flow



Water System Illustration for Units with Variable Terminal Air Flow (Constant Water Flow)

This illustration is for reference only. Please refer to relevant guides while installing the unit.

Instructions for Pipelining

- A hermetic water system is recommended.
- Parallel pipes are recommended for indoor fan coils to achieve balanced water flow.
- An air discharge valve must be installed at the highest point in the water system.
- To facilitate maintenance, a thermometer and pressure gauge should be installed at the water inlet/outlet pipes.
- New types of plastic water pipes such as PP-R and PVC pipes are recommended to ensure the durability of the water system.
- If the unit is not used in winter, water in the water system must be fully discharged to avoid damage to water pipes and other parts as a result of freezing up.
- The heater is an optional device which can be an electric heater or gas boiler.
- A standard accessory kit of the right model should be selected for the water system of EK EKAC060-EKAC150 series units.
- EK provides a most complete line of water system accessories for customers, as described in the following table.

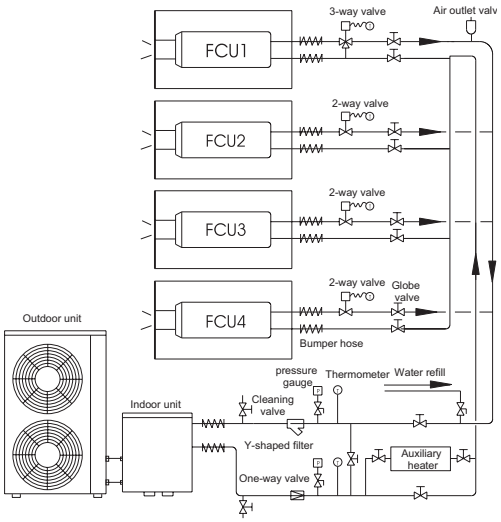


Table of Water System Accessories

Part name	EKAC040~EKAC055
Horizontal multi-grade pump	√
Horizontal multi-grade pump	√
Plate heat exchanger	√
Water tank	√
Hermetic expansion water tank	√
Water flow switch	√
Water filter	√
Relief valve	√
Auto air discharge valve	√
Auto water refill valve	√
Sewage discharge valve	√

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Dealer information

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